

FIG 1  
(Stand der Technik)  
Prior Art

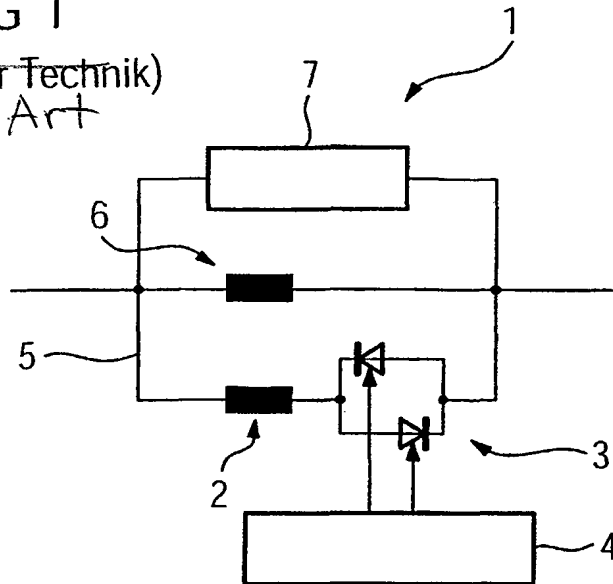


FIG 2

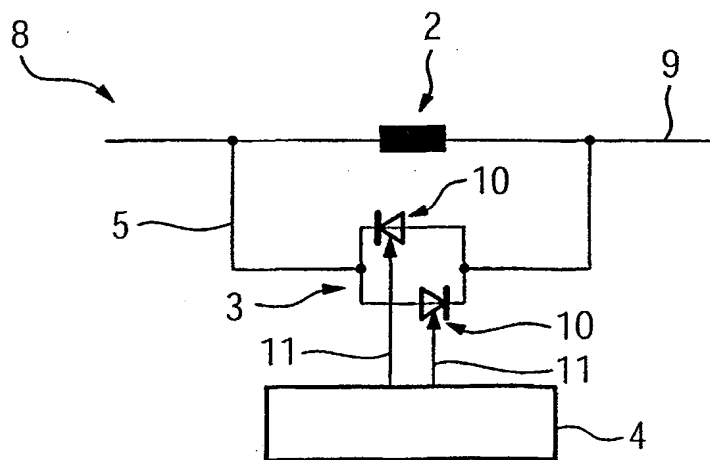


FIG 3a

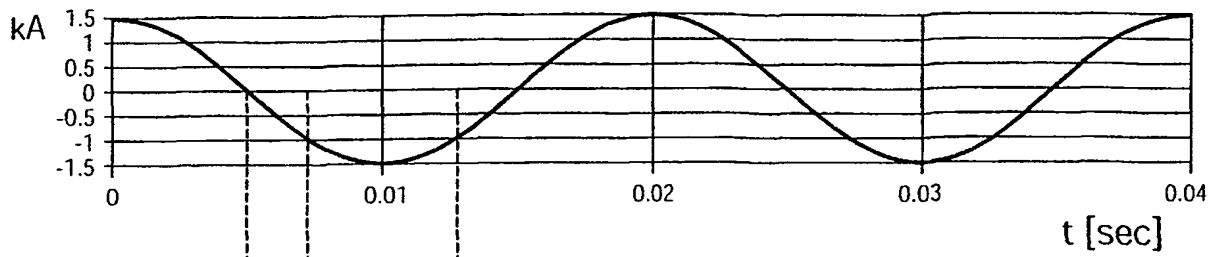


FIG 3b

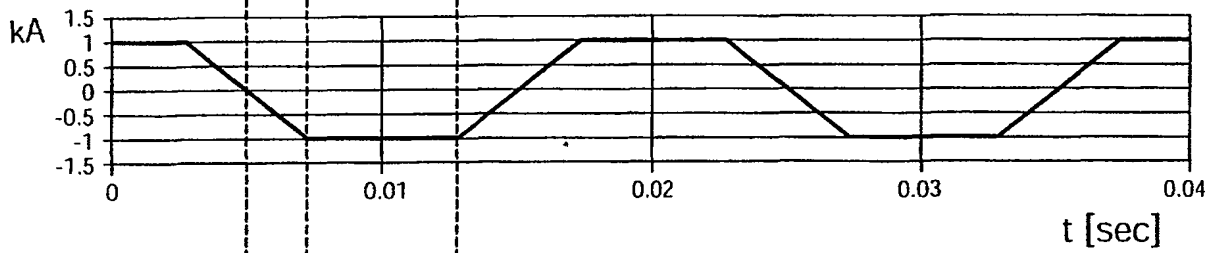


FIG 3c

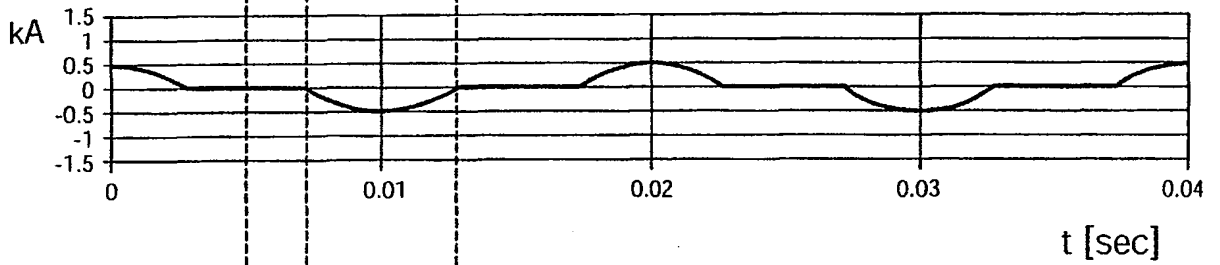


FIG 3d

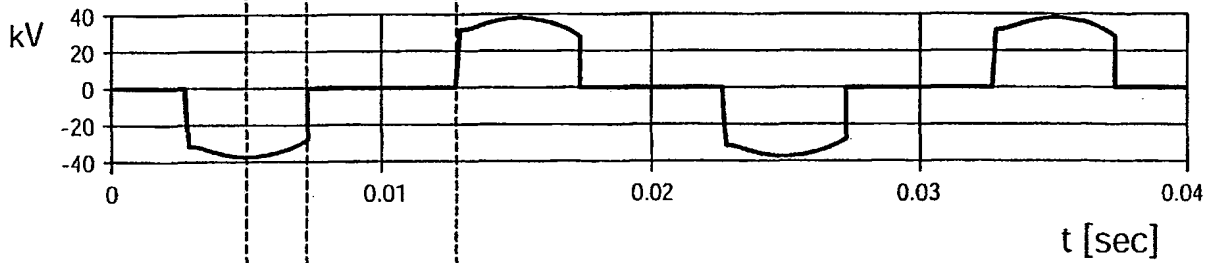


FIG 3e

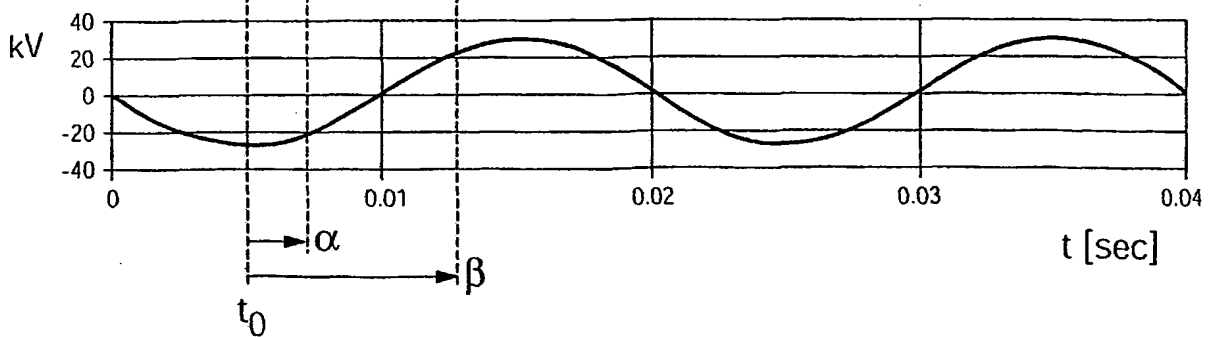


FIG 4

$$X_{\text{SUM}} / X_{\text{RSP}}$$

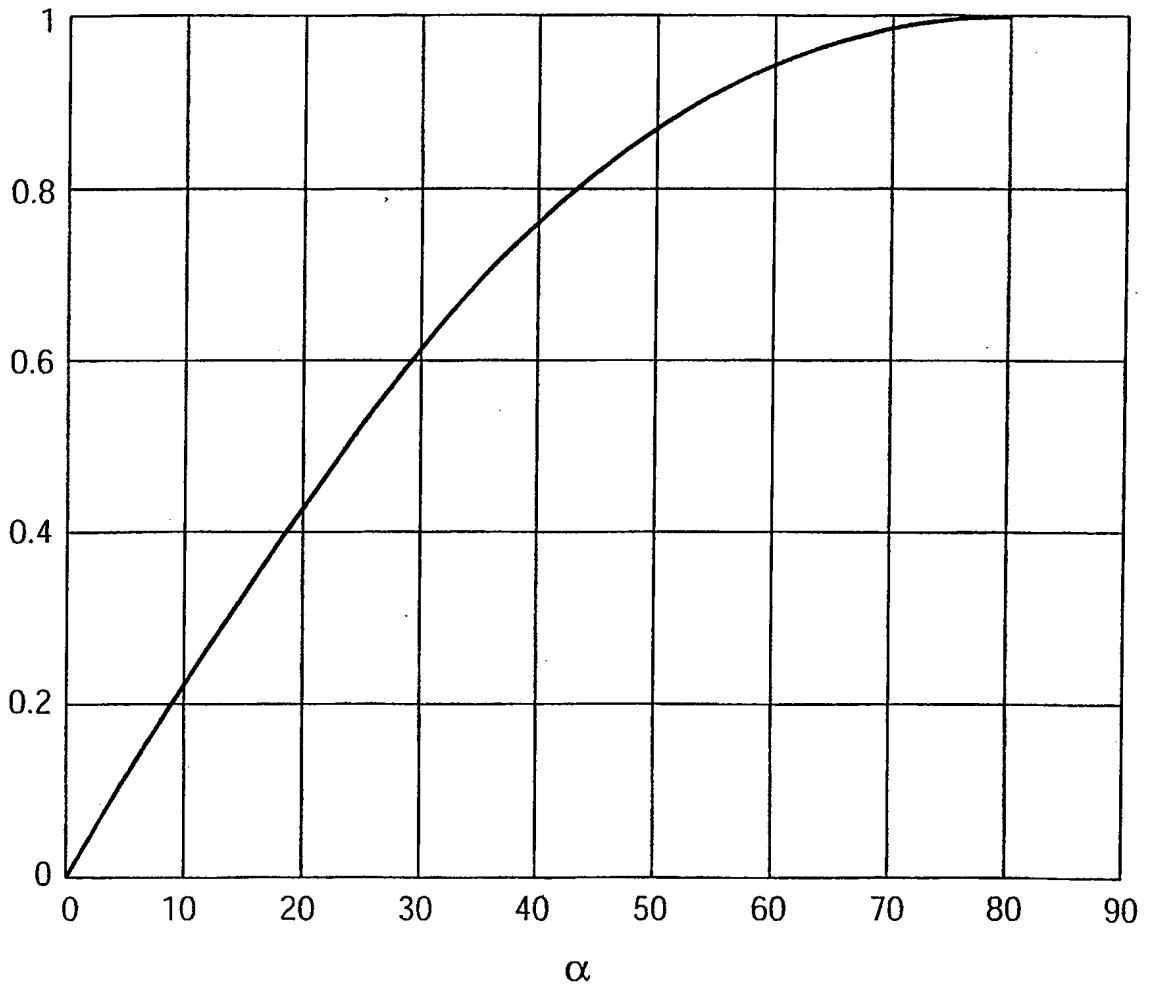


FIG 5a

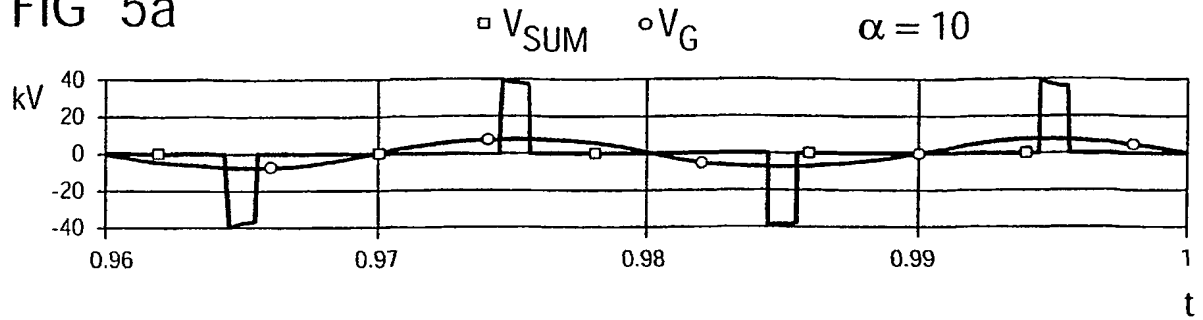


FIG 5b

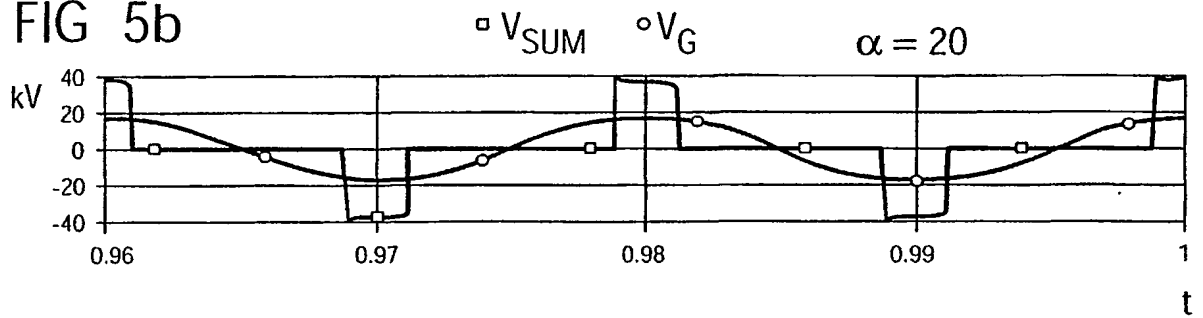


FIG 5c

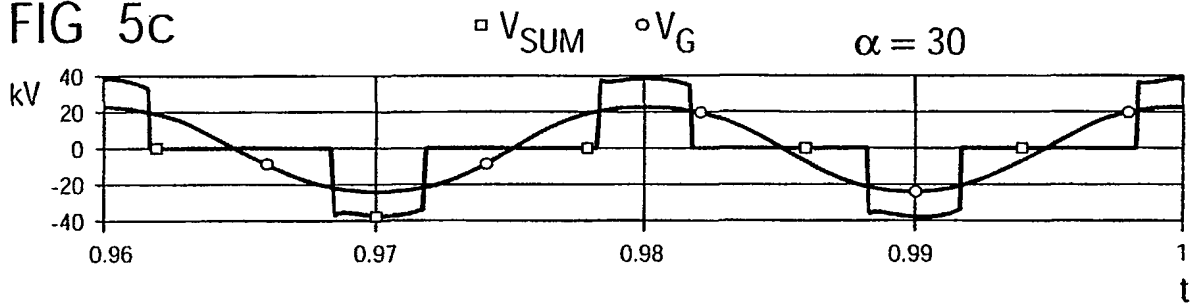


FIG 5d

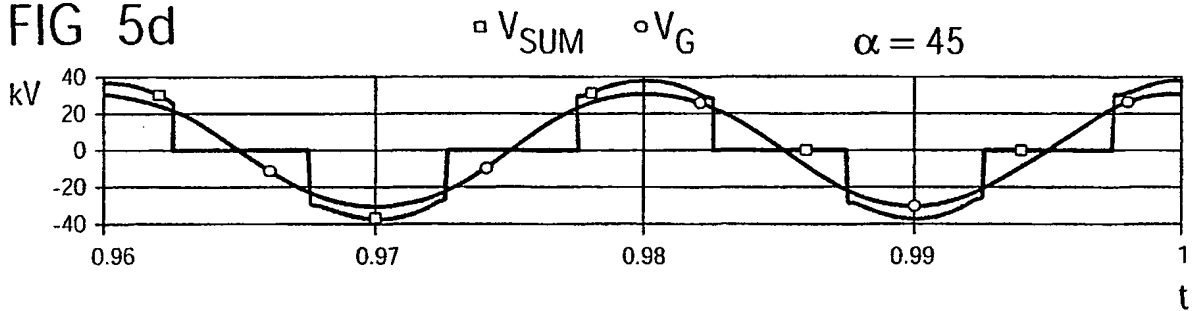
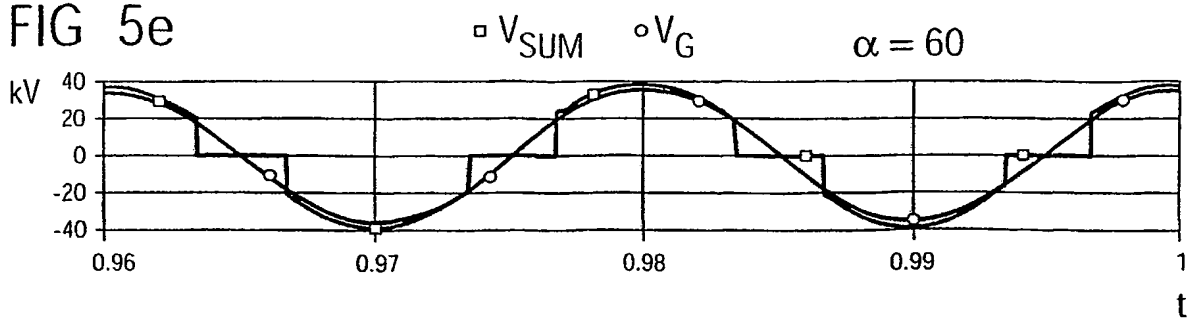


FIG 5e



Device For Adjusting The Impedance  
Of A High Voltage Line Supplying  
An Alternating Current

Inventors: Wilfried Breuer et al.

Attorney Docket.: 071308.0692

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FIG 6a

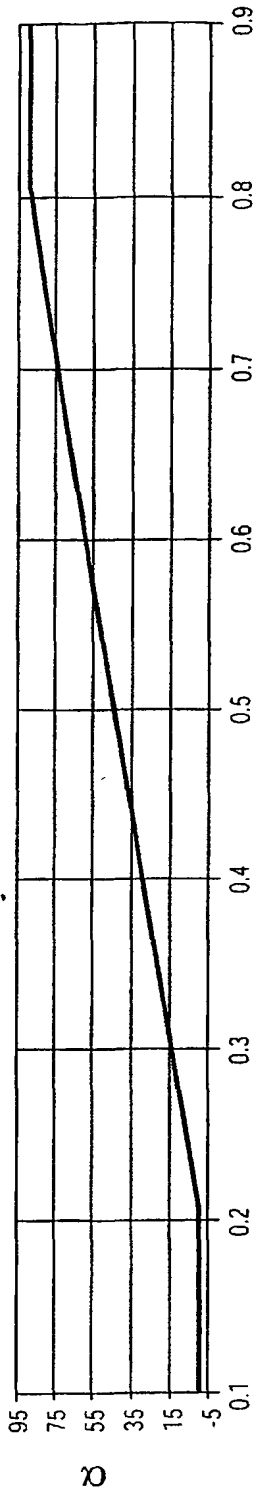


FIG 6b

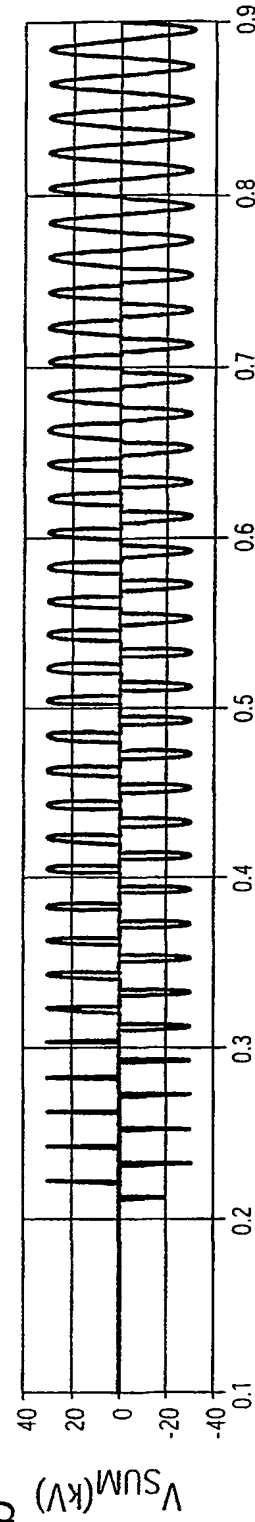


FIG 6c

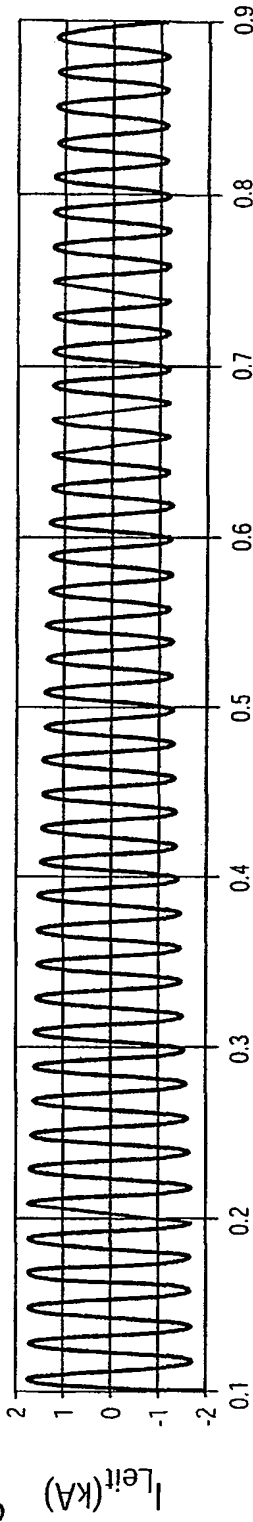


FIG 6d

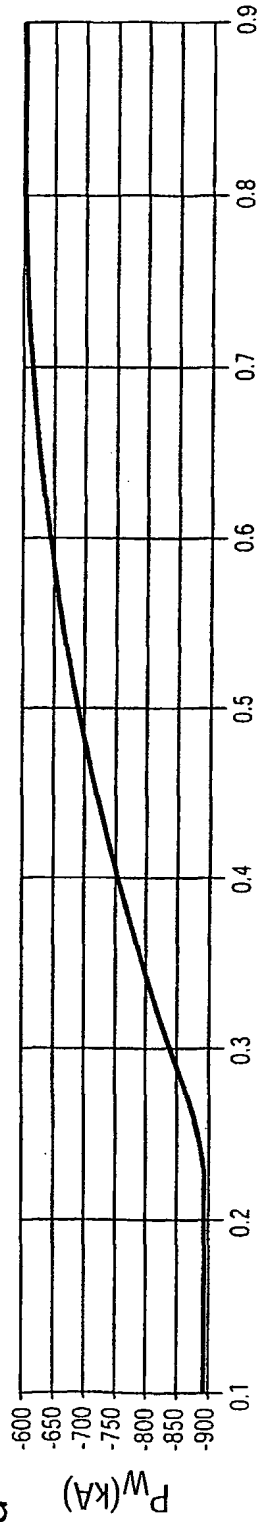


FIG 7

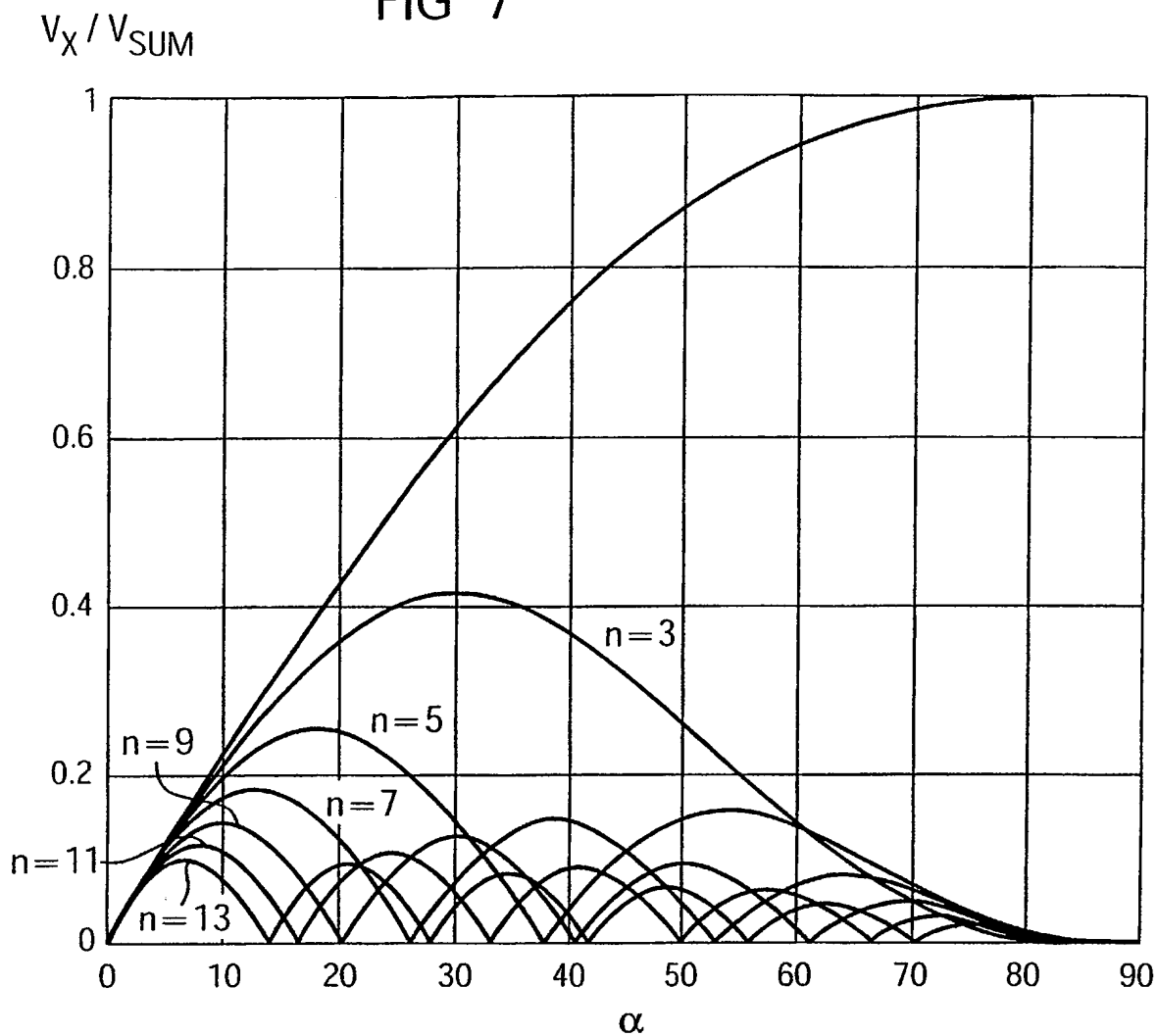


FIG 8

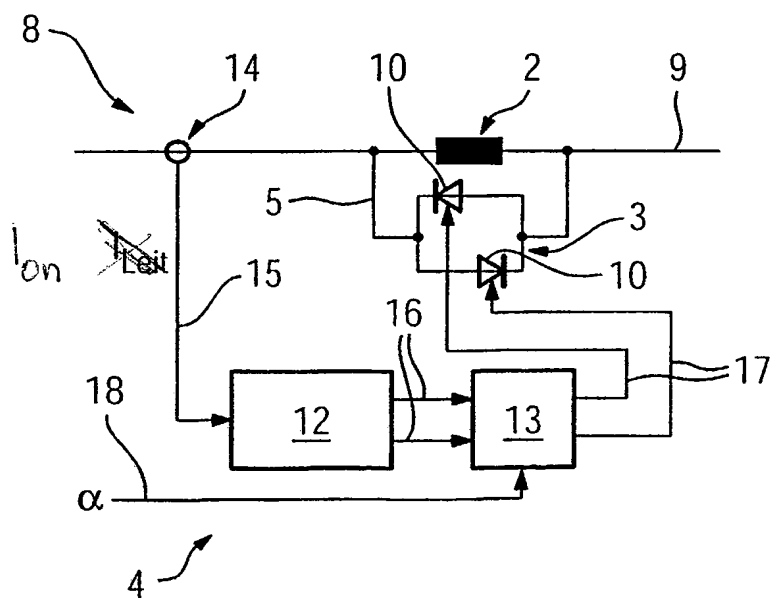


FIG 9

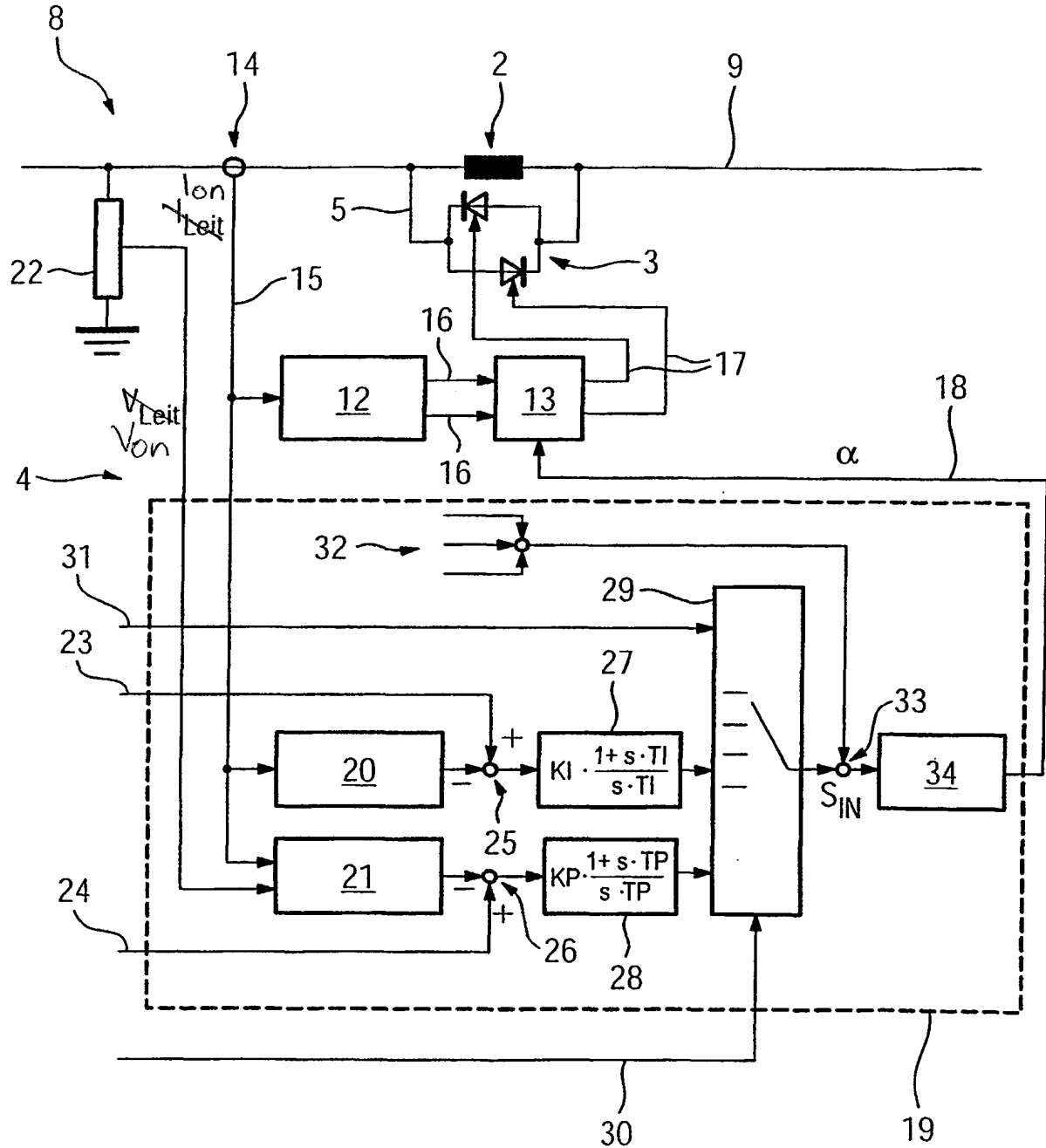


FIG 10

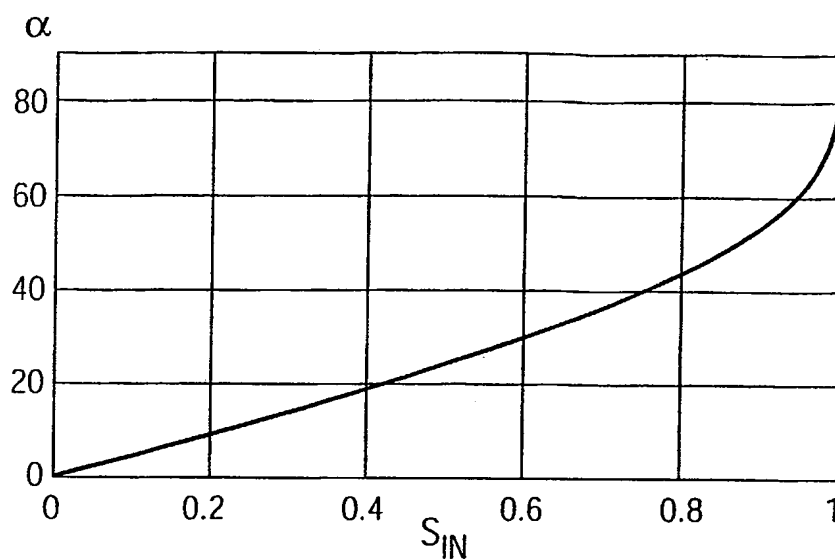


FIG 11

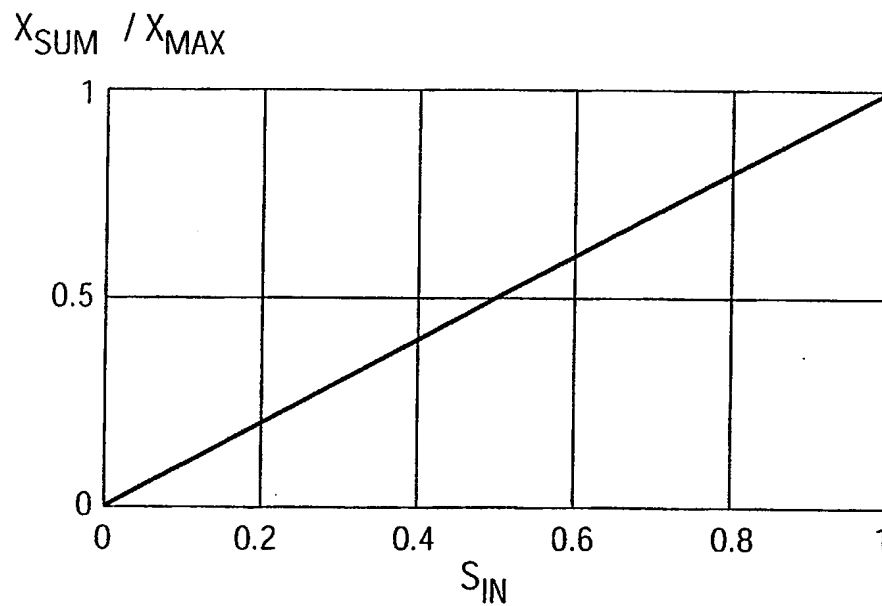


FIG 12

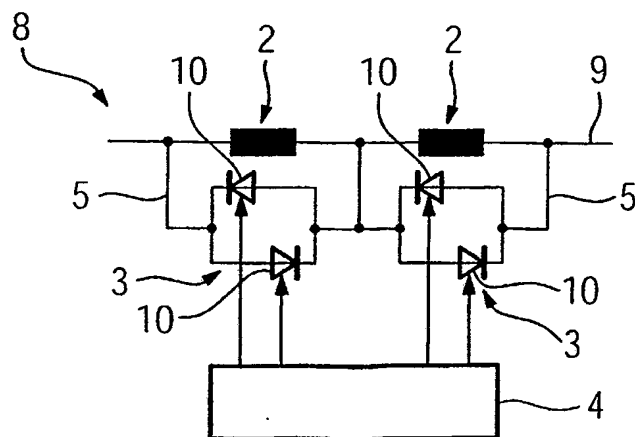


FIG 13

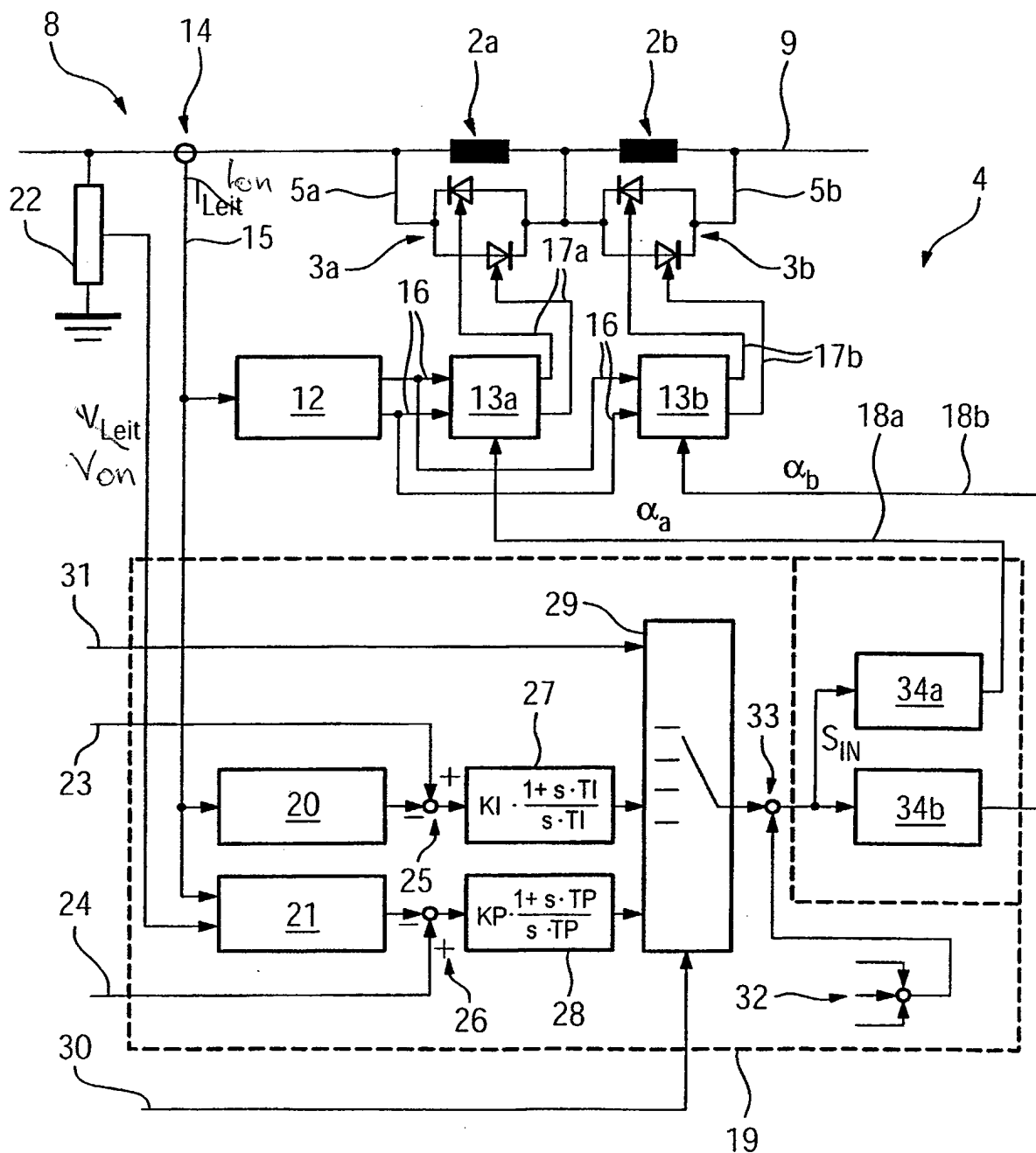


FIG 14

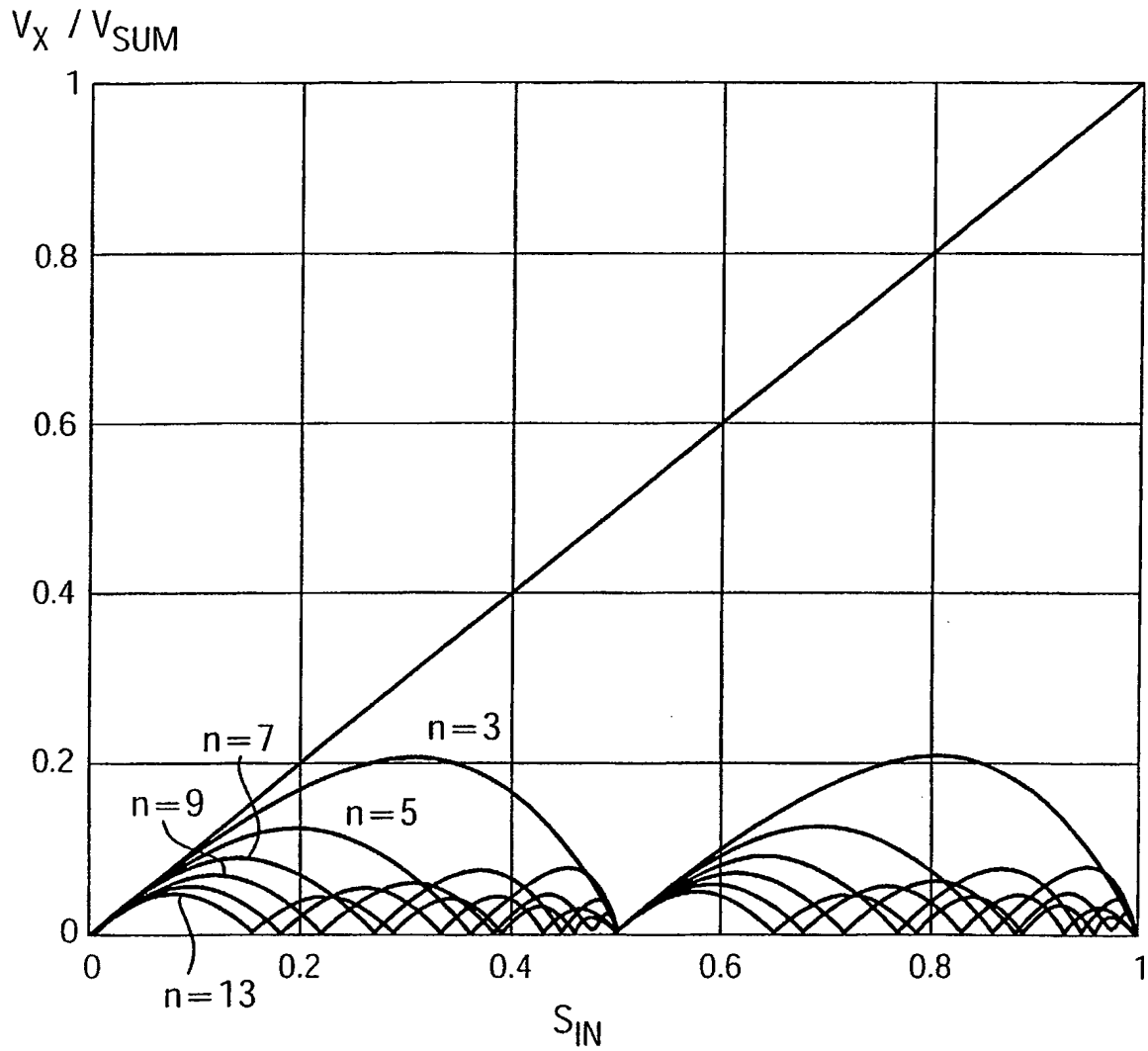


FIG 15a

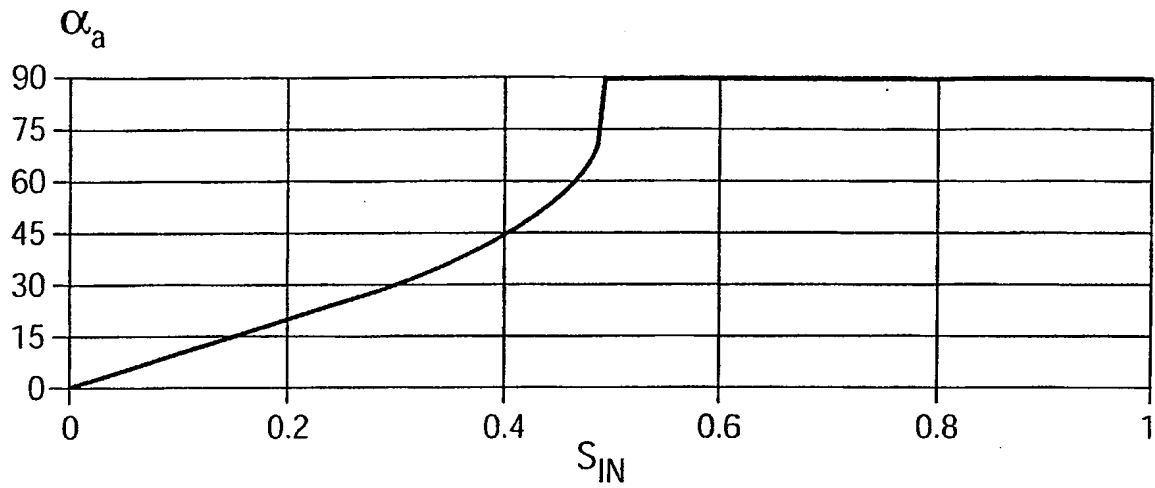


FIG 15b

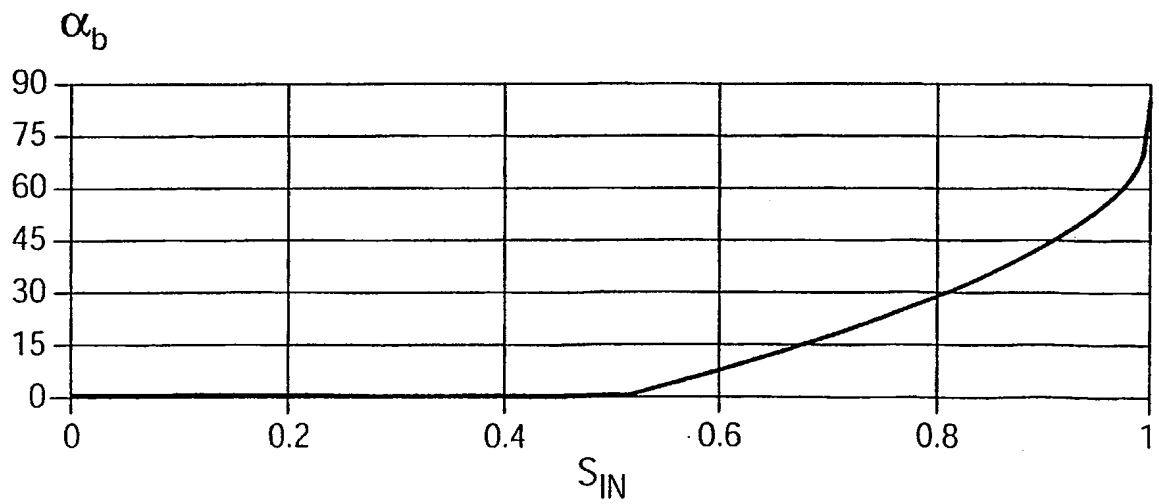


FIG 16

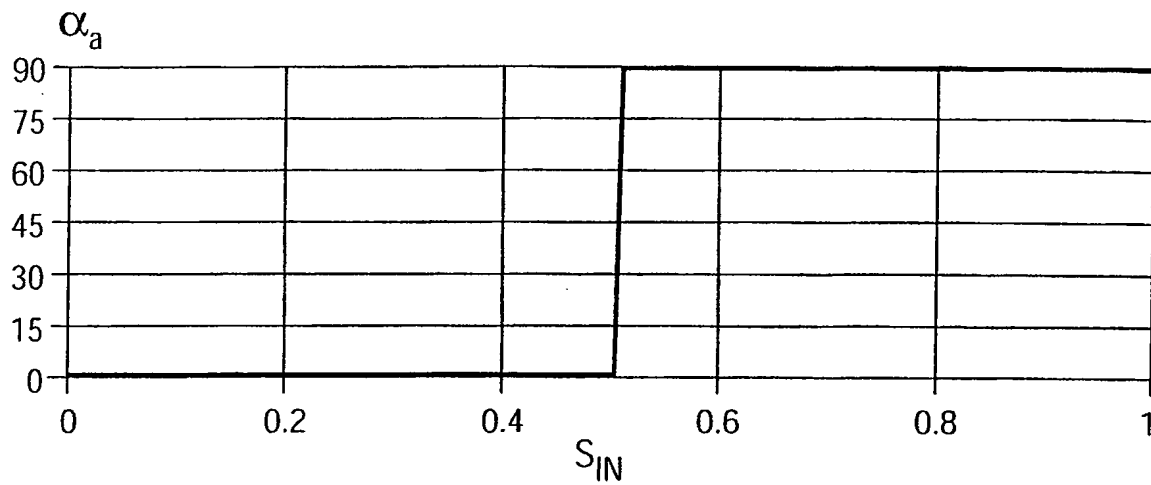


FIG 17

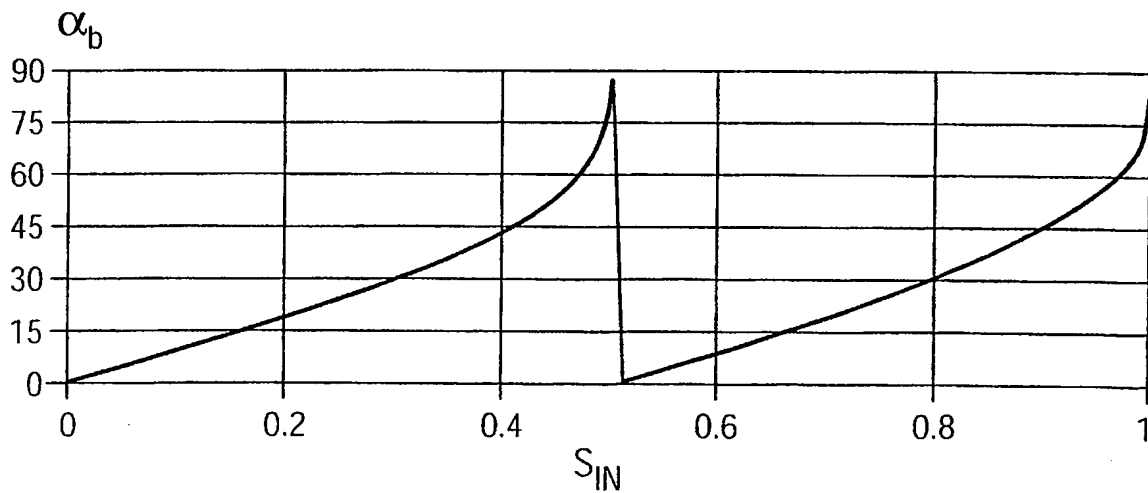


FIG 18

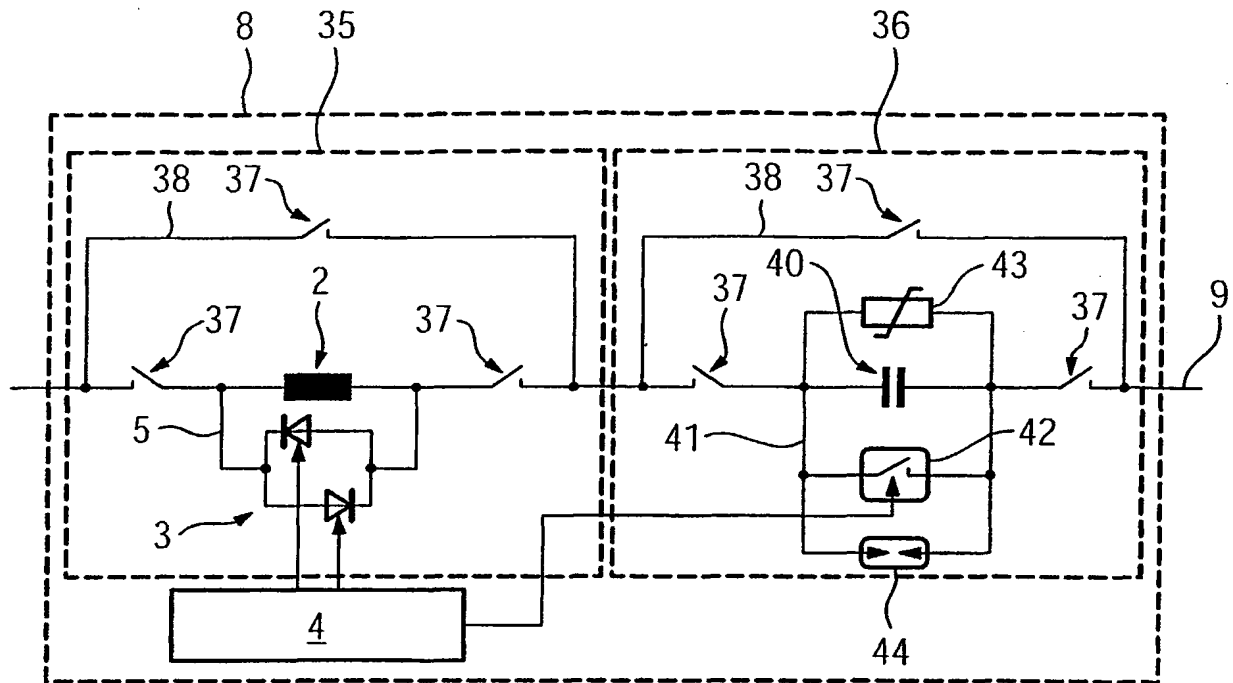
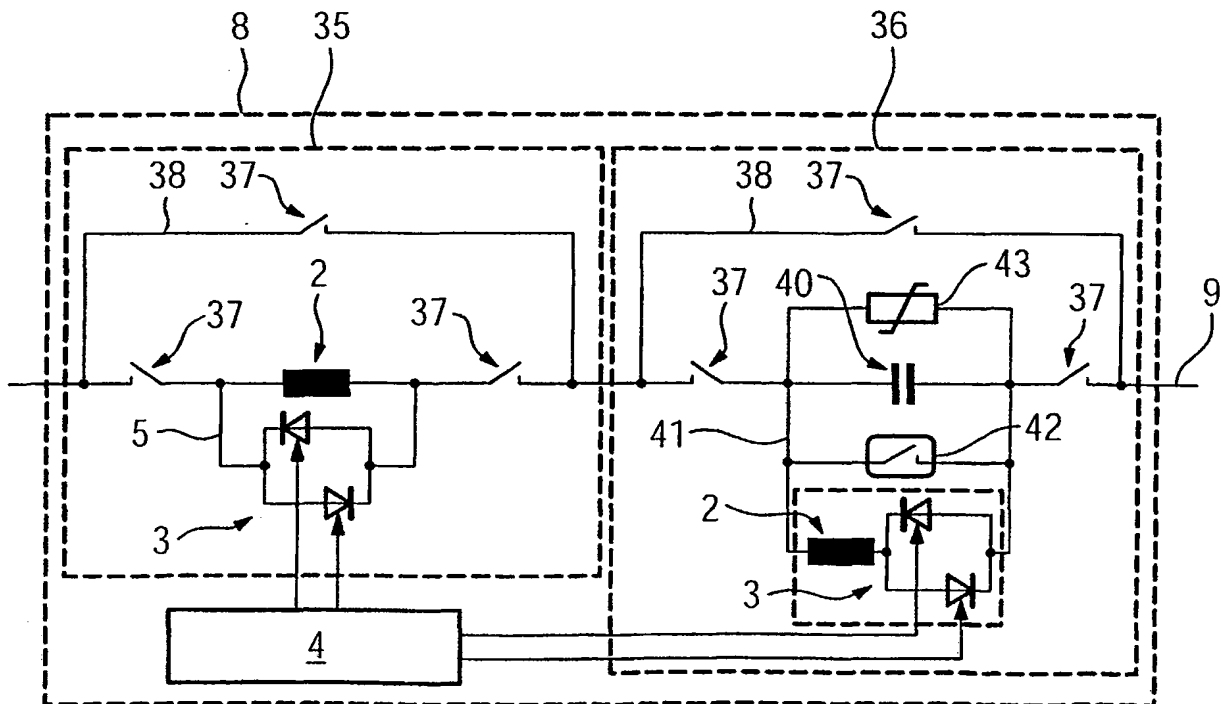


FIG 19



The diagram illustrates a power electronic system (4) and its control unit (30). The power system includes a DC link (8) connected to a load (22) and a voltage source  $V_{Leit}$ . A current sensor (14) measures the current  $i_{on}$  in the DC link. The DC link is connected to a bridge inverter (2) consisting of two legs (3a, 3b). Each leg contains a MOSFET (5) and an anti-parallel diode (17a, 17b). A resistor (40) is connected between the two legs. The inverter is connected to an AC grid (9) through a filter (41). The control unit (30) is enclosed in a dashed box and includes a reference input (23) and a feedback input (24). The reference input is processed by a PI controller (20) and a PD controller (21). The outputs of these controllers are summed (25) and then processed by a transfer function block (27) with the transfer function  $KI \cdot \frac{1+s \cdot TI}{s \cdot TI}$ . The PD controller (21) has a transfer function  $KP \cdot \frac{1+s \cdot TP}{s \cdot TP}$ . The outputs of the PI and PD controllers are summed (26) and then processed by a summing junction (33). The output of the summing junction (33) is the reference current  $S_{IN}$ , which is fed back to the current sensor (14). The control unit also includes a current limit block (34a) and a current limit block (34b). The output of the current limit block (34a) is fed back to the reference input (23). The output of the current limit block (34b) is fed back to the feedback input (24). The control unit also includes a current limit block (32) and a current limit block (32).

FIG 21

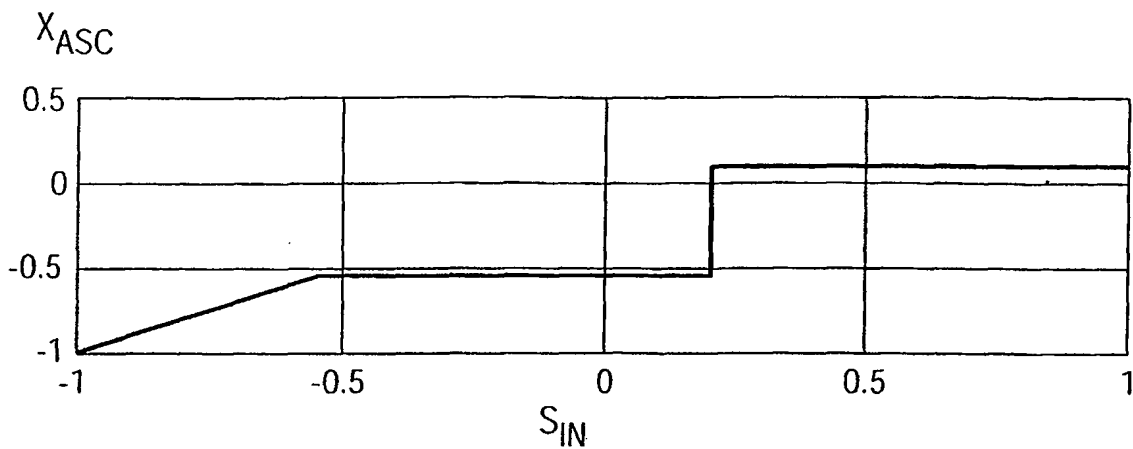


FIG 22

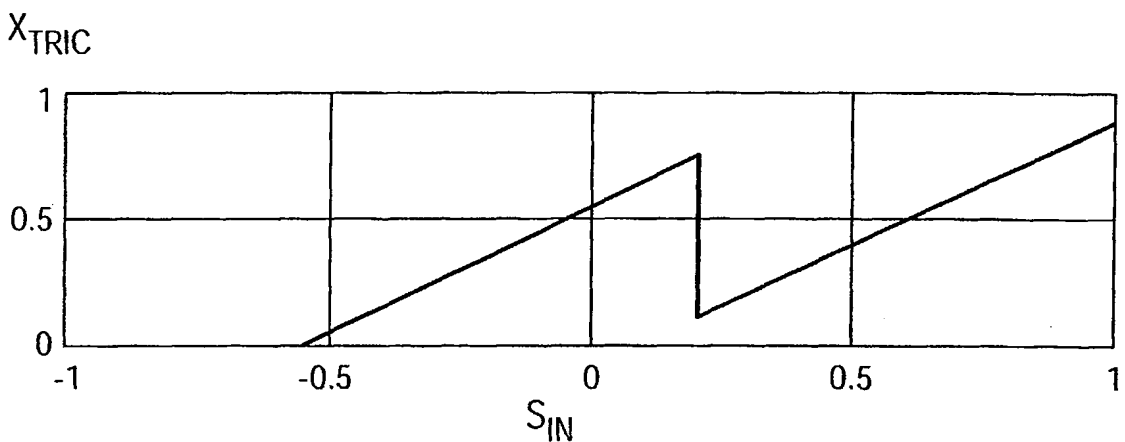


FIG 23

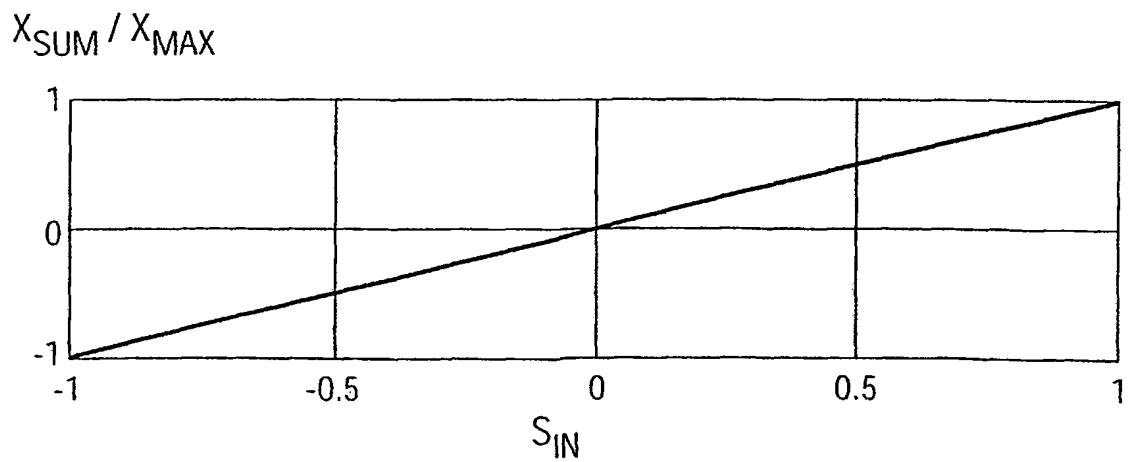


FIG 24

